

## Appendix C

# TOTAL PROJECT COSTS - USED FOR NOV 13, 1996 LEVEL OF CSO CONTROL ALTERNATIVE COST EFFECTIVENESS EVALUATION

Denny Way/Lake Union CSO Control Project

Date: 25-Mar-98

Tunnel Dia CSO Treatment Disinfection (Contact Time Method) Outfall Depth	STORAGE / TREATMENT ALTERNATIVES						STORAGE ONLY ALTERNATIVES			
	Federal CSO Policy		Intermittent Discharge		Continuous Discharge		Federal (4-6 Overflows/yr)		State (1 overflow/yr)	
	9.5 ft I.D.		14.5 ft I.D.		9.5 ft I.D.		24.5 ft I.D.		Twin 26 ft I.D.	
	Submerged Baffled Tank Forcemain		Submerged Baffled Tank Forcemain		Storage Tank, DAFT & Chem Add. Storage Tank		Not Required Not Required		Not Required Not Required	
	60' Deep & Plain End		60' Deep & Plain End		150 ft Deep & Plain End		60 ft Deep & Plain End		60 ft Deep & Plain End	
	Base Const	Contingency	Base Const	Contingency	Base Const	Contingency	Base Const	Contingency	Base Const	Contingency
<b>Elliott West CSO Control Facility</b>										
1.1 Influent Pump Station	\$2,580,000	\$900,000	\$3,950,000	\$1,380,000	\$3,950,000	\$1,380,000	\$2,579,000	\$900,000	\$3,950,000	\$1,380,000
1.2 Storage Tank/CSO Treatment	\$0	\$0	\$0	\$0	\$8,900,000	\$3,110,000	\$0	\$0	\$0	\$0
1.3 Tunnel Effluent Channel	\$1,130,000	\$1,300,000	\$1,130,000	\$390,000	\$1,020,000	\$360,000	\$390,000	\$140,000	\$390,000	\$140,000
1.4 Site Work	\$460,000	\$550,000	\$460,000	\$160,000	\$1,260,000	\$440,000	\$230,000	\$80,000	\$230,000	\$80,000
1.5 Effluent Pump Station	\$3,720,000	\$90,000	\$4,940,000	\$1,730,000	\$4,940,000	\$1,730,000	\$0	\$0	\$0	\$0
1.6 Disinfection Facilities	\$1,570,000	\$3,400,000	\$1,570,000	\$550,000	\$2,100,000	\$740,000	\$0	\$0	\$0	\$0
1.7 Standby Power	\$250,000	\$90,000	\$250,000	\$90,000	\$250,000	\$90,000	\$125,000	\$40,000	\$130,000	\$40,000
Subtotal	\$9,710,000	\$6,330,000	\$12,300,000	\$4,300,000	\$22,420,000	\$7,850,000	\$3,324,000	\$1,160,000	\$4,700,000	\$1,640,000
<b>Elliott West CSO Outfall</b>										
2.1 Treated Discharge Outfall ( Elliott West CSO Outfall)	\$1,250,000	\$380,000	\$1,250,000	\$380,000	\$4,260,000	\$1,280,000	\$0	\$0	\$0	\$0
2.1 Untreated Discharge Outfall (Denny Way CSO Outfall Extension)	\$2,170,000	\$650,000	\$2,170,000	\$650,000	\$2,170,000	\$650,000	\$2,170,000	\$650,000	\$2,170,000	\$650,000
Subtotal	\$3,420,000	\$1,030,000	\$3,420,000	\$1,030,000	\$6,430,000	\$1,930,000	\$2,170,000	\$650,000	\$2,170,000	\$650,000
<b>South Lake Union CSO Control Facilities</b>										
3.1 South Lake Union CSO Pipeline	\$1,400,000	\$210,000	\$1,400,000	\$210,000	\$1,400,000	\$210,000	\$1,400,000	\$210,000	\$1,400,000	\$210,000
3.2 Lake Union Tunnel CSO Pipeline	\$1,540,000	\$230,000	\$1,540,000	\$230,000	\$1,540,000	\$230,000	\$1,540,000	\$230,000	\$1,540,000	\$230,000
3.3 Central Trunk CSO Pipeline	\$400,000	\$60,000	\$400,000	\$60,000	\$400,000	\$60,000	\$400,000	\$60,000	\$400,000	\$60,000
3.4 Central Trunk Diversion Structure	\$320,000	\$60,000	\$320,000	\$60,000	\$320,000	\$60,000	\$320,000	\$60,000	\$320,000	\$60,000
3.5 Lake Union Tunnel Regulator Station	\$880,000	\$180,000	\$880,000	\$180,000	\$880,000	\$180,000	\$880,000	\$180,000	\$880,000	\$180,000
Subtotal	\$4,540,000	\$740,000	\$4,540,000	\$740,000	\$4,540,000	\$740,000	\$4,540,000	\$740,000	\$4,540,000	\$740,000
<b>Green Street Tunnel</b>										
4.1 Mercer Street Tunnel	\$15,790,000	\$3,160,000	\$19,790,000	\$3,960,000	\$15,790,000	\$3,160,000	\$45,240,000	\$13,570,000	\$99,640,000	\$29,890,000
4.2 East Tunnel Portal Drop Structure	\$860,000	\$220,000	\$860,000	\$220,000	\$860,000	\$220,000	\$1,480,000	\$520,000	\$2,500,000	\$880,000
4.3 West Tunnel Portal	\$2,220,000	\$560,000	\$2,370,000	\$590,000	\$2,220,000	\$560,000	\$2,660,000	\$930,000	\$3,460,000	\$1,210,000
4.4 Elliott Avenue Undercrossing	\$410,000	\$80,000	\$420,000	\$80,000	\$410,000	\$80,000	\$480,000	\$100,000	\$480,000	\$100,000
Subtotal	\$19,280,000	\$4,020,000	\$23,440,000	\$4,850,000	\$19,280,000	\$4,020,000	\$49,860,000	\$15,120,000	\$106,080,000	\$32,080,000
<b>Denny CSO Control Facilities</b>										
1.3 EBI Control Structure	\$440,000	\$90,000	\$440,000	\$90,000	\$440,000	\$90,000	\$440,000	\$90,000	\$440,000	\$90,000
1.3 System Drain	\$450,000	\$90,000	\$450,000	\$90,000	\$450,000	\$90,000	\$450,000	\$90,000	\$450,000	\$90,000
2.1 Elliott West Forcemain	\$4,820,000	\$960,000	\$4,820,000	\$960,000	\$4,820,000	\$960,000	\$0	\$0	\$0	\$0
5.1 Elliott West CSO Pipeline	\$3,660,000	\$730,000	\$3,660,000	\$730,000	\$3,660,000	\$730,000	\$3,660,000	\$730,000	\$3,660,000	\$730,000
5.2 Denny Way Diversion Structure	\$190,000	\$40,000	\$190,000	\$40,000	\$190,000	\$40,000	\$190,000	\$40,000	\$190,000	\$40,000
Subtotal	\$9,560,000	\$1,910,000	\$9,560,000	\$1,910,000	\$9,560,000	\$1,910,000	\$4,740,000	\$950,000	\$4,740,000	\$950,000
<b>Total - Base Construction Cost</b>	<b>\$46,510,000</b>	<b>\$14,030,000</b>	<b>\$53,260,000</b>	<b>\$12,830,000</b>	<b>\$62,230,000</b>	<b>\$16,450,000</b>	<b>\$64,634,000</b>	<b>\$18,620,000</b>	<b>\$122,230,000</b>	<b>\$36,060,000</b>
Base Construction Cost	\$46,510,000		\$53,260,000		\$62,230,000		\$64,634,000		\$122,230,000	
Contingency	\$14,030,000		\$12,830,000		\$16,450,000		\$18,620,000		\$36,060,000	
Subtotal Construction Cost	\$60,540,000		\$66,090,000		\$78,680,000		\$83,254,000		\$158,290,000	
Wash St. Sales Tax @ 8.6%	\$ 5,210,000		\$ 5,680,000		\$ 6,770,000		\$ 7,160,000		\$ 13,610,000	
<b>Total Estimated Construction Cost</b>	<b>\$65,750,000</b>		<b>\$71,770,000</b>		<b>\$85,450,000</b>		<b>\$90,414,000</b>		<b>\$171,900,000</b>	
Allied Costs										
King County Soft Capital @13% of Total Const. Cost	\$ 8,550,000		\$ 9,330,000		\$ 11,110,000		\$ 11,750,000		\$ 22,350,000	
Engineering @ 23% of Total Const. Cost	\$ 15,120,000		\$ 16,510,000		\$ 19,650,000		\$ 20,800,000		\$ 39,540,000	
Land, Right-of-way @ \$5.6 M	\$ 5,600,000		\$ 5,600,000		\$ 5,600,000		\$ 5,600,000		\$ 5,600,000	
<b>Total Allied Costs</b>	<b>\$ 29,270,000</b>		<b>\$ 31,440,000</b>		<b>\$ 36,360,000</b>		<b>\$ 38,150,000</b>		<b>\$ 67,490,000</b>	
<b>Most Probable Total Project Cost</b>	<b>\$ 95,020,000</b>		<b>\$ 103,210,000</b>		<b>\$ 121,810,000</b>		<b>\$ 128,564,000</b>		<b>\$ 239,390,000</b>	